



NIDUSTM

CENTER FOR SCIENTIFIC ENTERPRISE

**Institute of Biological Engineering
12th Annual Meeting
Bio Business Nexus**

**Robert J. Calcaterra
CEO / President
Nidus Center for Scientific Enterprise**

Set the Stage

- Manufacturing History
- World Class University
- World Class Botanical Garden
- Large Technology Based Corporations
 - Monsanto
 - Boeing
 - Sigma-Aldrich
 - Tyco/Mallinckrodt
 - Pfizer
 - Nestlé



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Critical Issues

- Critical Mass Leading Edge Research
- Critical Mass Skilled Workforce
- Access to Capital
- Adequate Physical Infrastructure



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Core Competencies in Plant and Life Sciences



Core strengths:

- ❖ Plant Sciences
- ❖ Genomics and Gene Sequencing
- ❖ Tropical Botany
- ❖ Neuroscience
- ❖ Virology/Microbiology/Immunology
- ❖ Cardiology
- ❖ Biomedical Engineering
- ❖ Information Technology



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FY 2004 NIH Funding

Institution	Total Grants	Total Amount	Institutional Rank	Research Grants	Research Amount	Institutional Rank
Washington University	885	\$388,307,875	6	791	\$360,437,877	5
University of Kansas system	165	\$62,989,375	89	146	\$59,705,948	82
University of Missouri	151	\$42,755,158	114	131	\$39,661,270	109
St. Louis University	96	\$33,361,121	139	85	\$26,620,493	132
Barnes-Jewish Hospital	1	\$980,760	899	0	\$0	NA
Midwest Research Institute	1	\$1,976,822	616	0	\$0	NA

Note: Ranks are for US institutions only: 3,182 total institutions.

Note: The Illinois portion of the St. Louis metropolitan area is included in Illinois and the Kansas portion of the Kansas City metropolitan area is not included.

Note: The University of Kansas Medical Center is grouped with the overall University of Kansas system.

Source: National Institutes of Health.



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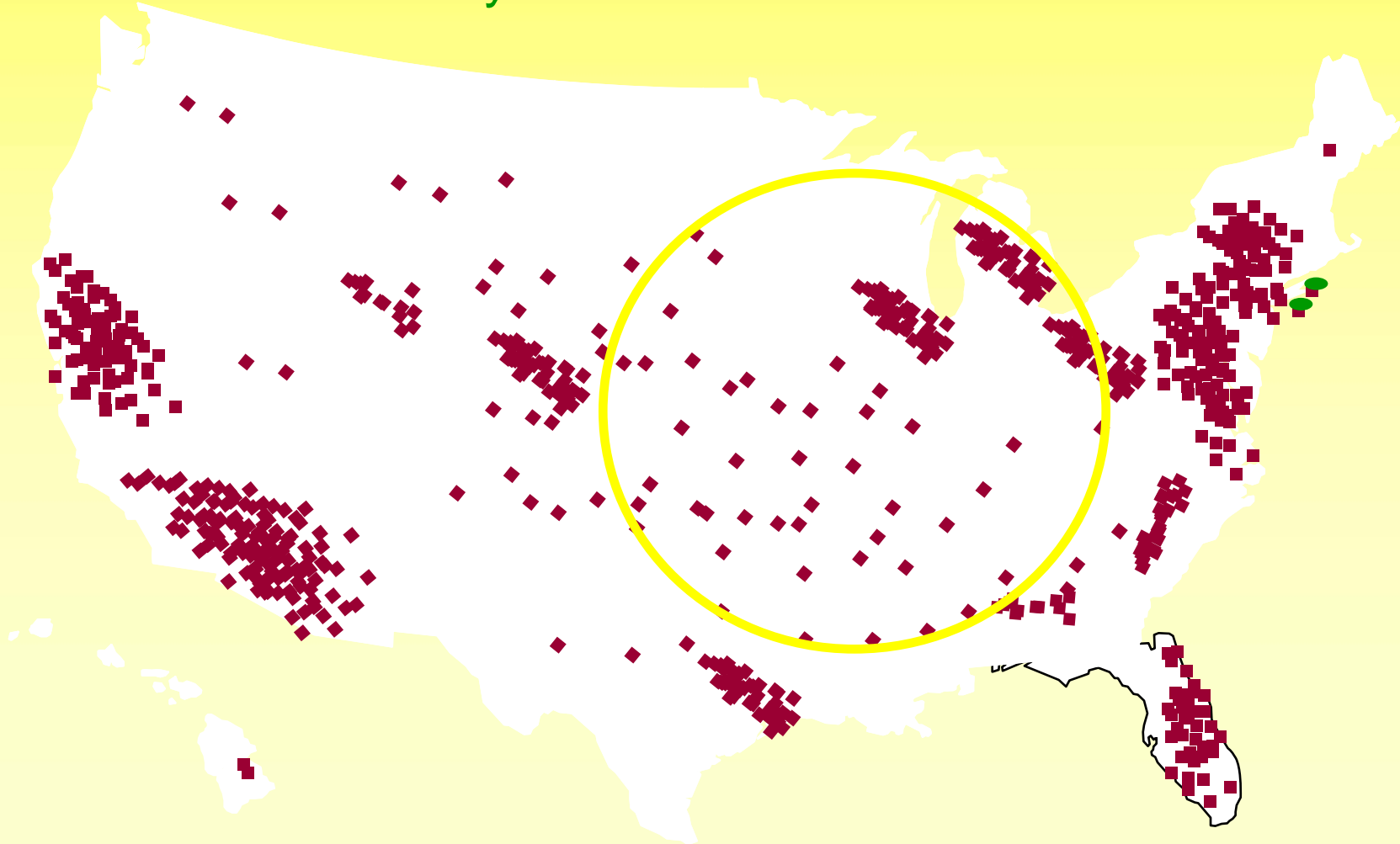
A Life Science Initiative



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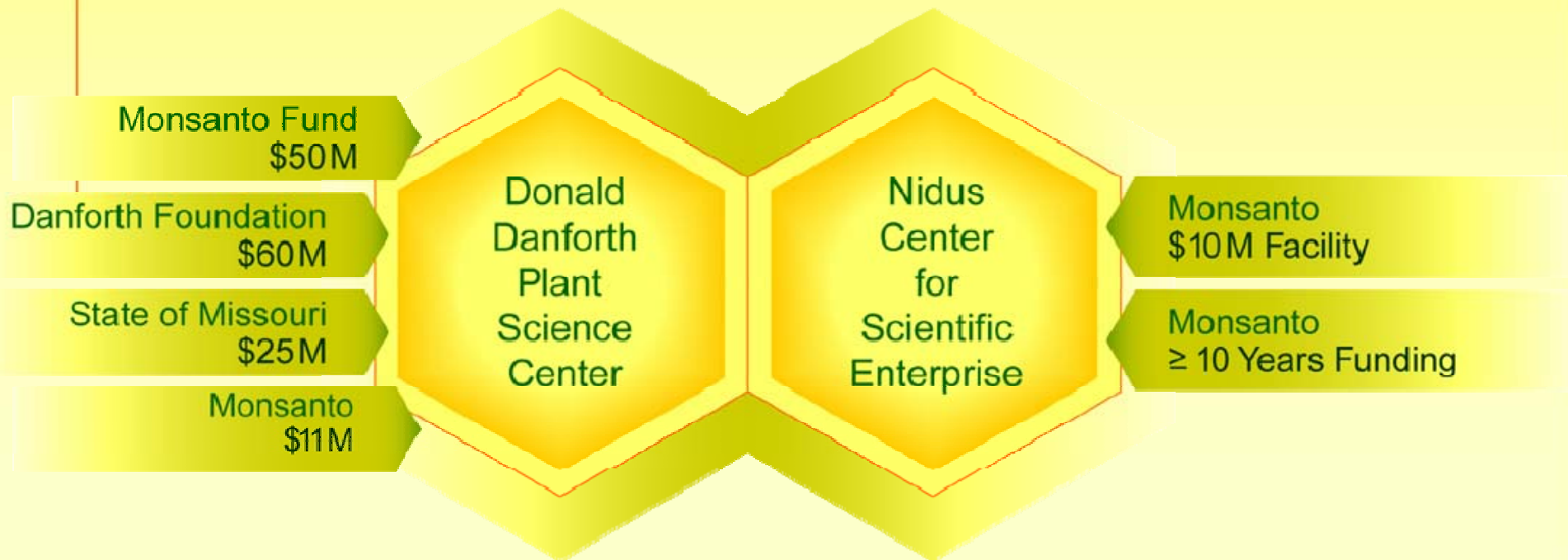
Why St. Louis?



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Commitment, Partnership, and Investment



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DONALD DANFORTH PLANT SCIENCE CENTER



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Regional Partner Relations

- Monsanto – offers strong support and autonomy
- Donald Danforth Plant Science Center – offers world-class technology
- Universities (Washington and St. Louis Universities) – offer technology generators; entrepreneurship education
- BioGenerator commercialization center – enables and accelerates commercialization process
- St. Louis Arch Angel Network
- Venture Capital Firms – Prolog, RiverVest, Burrill, Triathlon, Vectis etc.



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A Regional Perspective



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Strengths/Weaknesses/Plans



Research



Workforce



Infrastructure

Marketing



Venture Capital



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Initiatives Benefit the Region

- Increased seed capital
- Creation of MOBIO
- Creation of Innovate St. Louis
- Creation of BioGenerator
- Second-stage facilities for incubator graduates and other life and plant sciences companies
- Building support for entrepreneurial economy
- Improved university technology transfer
- Viable Angel network



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Strategy One – Marketing

- Branding
 - **BioBelt**
- MOBIO Formed (Missouri Biotech Association)
 - **Multi-State Organization**
- Statewide Coalition



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Strategy Two: Workforce Initiatives

- Large Supply of Life Science Executives
- St. Louis Community College – 2+2 Program
- Southern Illinois University, Edwardsville
 - Graduate Program in Biology/Business
- Washington University, Olin School of Business
 - Experiential Learning Program
- Attraction Program



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Strategy Three: Infrastructure

- Capital Alliance

- Innovate St. Louis

 - Plant and Life Sciences Cluster

 - IT Cluster

 - Mentoring Program

 - Capital Formation

- Facilities

 - Danforth Center

 - Nidus Center

 - Center for Emerging Technologies (CET)

 - CORTEX

 - Graduate Lab Facilities



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Strategy Four: Venture Capital

- Currently Have:

- Seed Funds
- Proof of Concept
- Pre-Seed
- Angel Investing

- Still Need:

- Seed Funds (More)
- Later Stage Funds



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Strategy Four: Venture Capital – cont'd

- **What Now Exists:**

Prolog Ventures I	\$ 32M
Prolog Ventures II	\$ 68M
RiverVest Ventures I	\$ 89M
RiverVest Ventures II	\$ 125M
Oakwood Medical Ventures III	\$ 35M
Oakwood Medical Ventures IV	\$ 45M
Triathlon Medical Ventures	\$ 86M
Ascension Health Care (6 yrs)	\$ 125M
Vectis Fund of Funds	<u>\$ 82M</u>
	\$ 687M



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Conclusions

- **Strengths:**

- Research
- Incubators
- Integrated Strategy
- Seed Venture Capital
- Networking
- Proof of Concept/Pre-Seed Venture Capital
- Angel Investing

- **In Progress:**

- Workforce Development
- Facilities
- Technology Transfer
- Branding

- **Weaknesses:**

- Late Stage Funds and additional Seed Stage Funds



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Incubation – Nidus Center



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Nidus Center for Scientific Enterprise Vision

- Monsanto Funded
- National Board of Directors
- Broadly Based Plant and Life Sciences
- Highly Selective (3-4%)



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Nidus Center's Mission

- Create critical mass of plant and life sciences companies
- Attract all stages of investment capital
- Commercialize partner technologies
- Gain recognition as a world center for plant and life sciences
- Biotech research and commercialization



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Nidus Center's Management Goals

- Pipeline of client companies
- Admission of high quality clients
- Successful companies
- Retention of companies in St. Louis
- Management (occupancy, budget, sustainability)
- Community Involvement



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Sustainability Options

- Equity in companies
- Reduced staffing
- Endowment
- Management of additional properties



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Success Factors and Best Practices



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Incubator Success Factors

- A focused market
- Stable funding
- Public/private partnerships
- Affiliations with research institutions
- Value-added client services
- Ability to attract quality clients
- Availability of seed capital



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Nidus' Best Practices, Unique Attributes

- Stringent selection criteria
- Attract local and national clients
- Services provided
- Client tracking
- Graduation criteria
- Sourcing investment
- Management with skills to grow companies



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Nidus' Best Practices, Unique Attributes CONT'D

- CEO-in-residence
- Sustainability
- Community embeddedness
- National board of directors
- Broadly based in plant and life sciences
- No direct relationship with Monsanto required



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Successful Clients



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Creating Successful Client Companies

- Enhance the management team
- Develop a viable business model
- Assure a strong IP position
- Raise investment capital



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Client Assistance

- Milestone setting
- Coaching
- Financing preparation
- SBIR assistance
- CEO meetings and training
- On-site (NRC license, waste removal, data networking, equipment, security, growth chambers, day care and fitness facilities)
- Participation in board and SAB meetings



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Nidus Center's Client Company Mix

- 4 Ag/Food
- 4 Medical Services
- 7 Drug Discovery
- 1 Medical Device
- 2 Other



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Nidus Center Statistics

- Companies: Have worked with 18
 - 9 current clients
 - 6 graduates
 - 3 failures
- Investment: > \$176MM
- Employees: 75+ FTE
- Annual Salaries: > \$7MM



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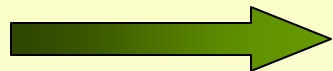
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Cluster Success Measures

- Critical Mass

Companies → 120 - 150
Management

- Venture Capital Investment Required - \$1 – 2B



Expectations = 20 years to measure success



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Nidus Success Measures

- 15-20 \$50M Market Cap Companies within 10 years (2010)
- 3-5 \$50M Companies/year starting 2005



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